WALL MOUNTAIN TUFF (Oligocene) -- Gray to brown, eutaxitic, welded, rhyolite ash-flow tuff containing

ANDESITE (Tertiary) -- Light to dark greenish-gray nonporphyritic dikes composed chiefly of fine- to medium-grained subhedral to euhedral plagicalse and alteration products consisting of chlorite, sericite, and magnetite. Some chlorite may have replaced hornblende. A few dikes have interstitial quartz. Most dikes in the unit are andesites or quartz andesites but some may be dacites. Exposed in

RHYODACITE PORPHYRY (Tertiary) -- Gray to greenish-gray porphyritic dike rocks with aphanitic to fine-grained groundmass. Contains quartz phenocrysts and various combinations of plagioclase, biotite,

and hornblende phenocrysts in a groundmass of the same minerals with chlorite, epidote, biotite,

calcite, and magnetite as alteration products. Quartz phenocrysts commonly partly resorbed. Unit includes dikes ranging in composition from rhyodacite to dacite. Exposed in northwestern part of the

WHITEHORN GRANODIORITE (Upper Cretaceous) -- Mostly fine- to medium-grained hypidiomorphic-seriate biotite granodiorite locally containing varietal amounts of hornblende and augite. Biotite-rich inclusions are common. Ranges in composition from quartz diorite to quartz monzonite, but small stock 3 km southeast of Salida locally has syenogabbro along the border. Weakly foliated locally near margin. Basal contact

of main body is subparallel to bedding of underlying host rocks, indicating that the body originally may have been laccolithic in form. Gravity data (Case, 1973) and aeromagnetic data (Zietz and Kirby, 1972) permit this interpretation. The stock southeast of Salida probably was a feeder for the

SANGRE DE CRISTO FORMATION (Permian and Pennsylvanian) -- Chiefly reddish-brown, thin to thick-bedded, arkosic sandstone, micaceous siltstone, and shale, but locally contains limestone, gypsum, and black

MINTURN FORMATION AND BELDEN SHALE UNDIVIDED (Pennsylvanian) -- Exposed east and northeast of Salida. In

Minturn Formation--Dark-gray and dark greenish-gray shale, siltstone, and arkosic, locally micaceous, sandstone in northern half of the area; gray, green, brown, and reddish-brown sandstone and siltstone, and black to reddish-brown shale in southern half of the area. Contains subordinate dark-gray limestone and sandy limestone. Limestone containing invertebrate fossils exposed at top

Belden Shale--Dark-gray, carbonaceous, shale and thin-bedded sandstone and shaly siltstone. Base of unit in sec. 35, T. 15 S., R. 77 W. contains hematitic sandstone and shale prospected for iron ore.

MISSISSIPPIAN, DEVONIAN, ORDOVICIAN, AND CAMBRIAN SEDIMENTARY ROCKS UNDIVIDED -- Includes in descending

Leadville Limestone (Lower Mississippian) -- Gray, finely crystalline, thin- to thick-bedded, commonly massive, locally cherty, limestone and dolomite. Contains one or more beds of sandy limestone

breccia at base. Metamorphosed to a wide variety of calc-silicate minerals at Calumet mine where

the unit also contains magnetite and other minerals formed during iron mineralization (Behre and others, 1936). Thickness 55-77 m

Dyer Dolomite Member--Yellowish-gray cherty dolomite and subordinate greenish-gray shale. Dolomite

Parting Quartzite member--Light-gray, pale brownish-yellow, and pale pinkish-gray, thin- to thick-bedded quartzite with subordinate dolomite, shale, and conglomerate. Locally contains

Fremont Dolomite (Upper and Middle Ordovician) -- Light- to dark-gray, commonly mottled, thick-bedded, massive dolomite with irregularly distributed chert nodules. Typically weathers to rough surface.

Harding Sandstone (Middle Ordovician)--Gray, green, and reddish-brown, thin- to thick-bedded sandstone and quartzite that locally contains abundant fossil fish plates. Thickness 15-22 m

Manitou Limestone (Lower Ordovician) -- Dark-gray, thin- to thick-bedded cherty dolomite and dolomitic limestone. Contains breccia of angular pebble- and cobble-size fragments of laminated chert in matrix of reddish-brown siliceous mudstone where unit is thin about 3 km west of Gribbles Park. The breccia probably filled solution cavities. Thickness 0-67 m

Sawatch Quartzite (Upper Cambrian) -- White, medium-grained, massive to faintly crossbedded quartzite locally containing subangular to rounded quartz pebbles. Missing at most localities. Thickest

QUARTZ MONZONITE OF SILVER PLUME AGE (Precambrian Y)--Gray, fine- to medium-grained, hypidiomorphic-granular, massive to weakly foliated, biotite quartz monzonite. Weathers reddish-brown

LAMPROPHYRE (Precambrian X)--Greenish-black, finely mottled with light-gray, fine-grained dike rock composed of plagioclase, green hornblende, biotite, and strained quartz with abundant accessory sphene.

QUARTZ MONZONITE (Precambrian X)--Pale reddish-orange to dark reddish gray, fine- to medium-grained allotriomorphic granular, biotite quartz monzonite composed of quartz, microcline, sericitized plagicclase, and 3-10 percent biotite. Massive to weakly foliated. Equivalent to aplite of Van Alstine (1969) and of Scott, Van Alstine, and Sharp (1975) in adjacent parts of Poncha Springs

PEGMATITE (Precambrian X)--Coarsely crystalline quartz-microcline-albite rock containing variable amounts of biotite and muscovite. Some bodies contain accessory beryl, garnet, and columbite-tantalite. Unit contains some aplite. Only largest and longest bodies shown. Forms dikes 1 m or more wide and large irregular bodies, chiefly near Turret. The Turret district has been one of the largest feldspar producing districts in Colorado, and the Homestake mine has had the largest production of feldspar

OUARTZ MONZONITE PORPHYRY (Precambrian X) -- Gray porphyritic quartz monzonite containing phenocrysts of conspicuous dark-gray quartz, perthitic microcline, and partly sericitized plagioclase (oligoclase) in a fine- to medium-grained, allotriomorphic granular groundmass of the same minerals. Phenocrysts

GRANODIORITE OF BOULDER CREEK AGE (Precambrian X) -- Gray, medium- to coarse-grained granodiorite and

GRANOD'ORITE OF METHODIST MOUNTAIN (Precambrian X)--Medium-gray, massive, fine- to medium-grained granodiorite consisting chiefly of quartz, oligoclase, microcline, biotite, and hornblende. Exposed near Cleora and more extensively to the south in the northwestern part of the Howard quadrangle (Taylor

METAGABBRO (Precambrian X)--Dark greenish-gray to greenish-black, massive metagabbro and metadiabase consisting chiefly of plagioclase and hornblende. Relict ophitic texture locally preserved. Some plagioclase is original igneous zoned oligoclase-labradorite, but much apparently is metamorphic

GNEISS (Precambrian X) -- Gray to black, well-foliated biotite gneiss and amphibolite with less abundant

gray to pale grayish-orange quartz-feldspar gneiss. Common biotite-rich gneiss includes biotite-quartz-plagicclase, sillimanitic quartz-biotite-muscovite, and biotite-quartz microcline

varieties. These are interlayered with amphibolite and hornblende gneiss and with small amounts of

hornfels consisting of pyroxene, hornblende-diopside-plagioclase, garnet-biotite, and corundum-spinel-bearing varieties. Quartz-feldspar gneiss includes plagioclase- and microcline-bearing

gneisses, some with garnet. Unit reached medium metamorphic grade, or lower amphibolite facies, or regional metamorphism. Locally migmatitic and cut by pegmatite bodies that vary in size from small

segregations to large masses (Xp). Grades to the south into nonmigmatitic interlayered metasedimentary

and metavolcanic rocks (Xvs), metabasalt (Xb), and metagabbro (Xg), from which it formed during

METASEDIMENTARY AND METAVOLCANIC ROCKS (Precambrian X) -- Gray to black, weakly foliated to nonfoliated metatuffs interlayered with metasandstone, quartzite, and minor local chert and phyllitic shale. Tuffs

are rhyodacites showing compaction banding and are composed of quartz and oligoclase-andesine

phenocrysts in a recrystallized groundmass of quartz, feldspar, and biotite. Metasandstones include light-colored, commonly thin-bedded and locally cross-laminated varieties consisting of quartz,

plagioclase, biotite, and muscovite, and dark-colored hornblende-rich sandstones and breccias

consisting of debris from basaltic sources. Interlayered with metabasalt (Xb) and intruded by metagabbro (Xg). Metamorphosed to amphibolite facies (Boardman, 1976), but abundant well preserved original sedimentary and igneous textures and structures within 8 km of Salida indicate that the unit

contains some of the least deformed and least reconstituted rocks of Precambrian X age in the region.

Grades to the west in the Poncha Springs quadrangle and to the south in the Howard quadrangle into

slightly more deformed and metamorphosed rocks and to the north near Longs Gulch through several tens

METABASALT (Precambrian X)--Dark gray to greenish-black flows composed chiefly of hornblende and plagicclase with minor quartz. Groundmass contains plagicclase crystals in original felted arrangement. Locally amygdaloidal. Unit locally contains black metasandstone composed of quartz,

plagicclase, and basaltic grains. Interlayered with metasedimentary and metavolcanic rocks (Xvs) about

granodiorite (Xgd) 2.5 km northeast of Turret. Composed of hornblende and plagioclase, locally with

HORNBLENDE GNEISS (Precambrian X)--Greenish-black medium-grained gneiss forming large inclusions in

----- CONTACT - Long dashed where approximately located; short dashed where inferred

PROJECTED FAULT - Location of fault prior to emplacement of Whitehorn Granodiorite

X FOSSIL LOCALITY - Showing USGS Denver catalog number. Some localities are not numbered

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--- FAULT - Dashed where approximately located; dotted where concealed

STRIKE AND DIP OF FLOW LAYERING AND FOLIATION

oligoclase containing abundant saussuritic minerals. Forms sills and irregular bodies

deformation accompanying regional metamorphism and emplacement of granodiorite (Xgd)

quartz monzonite composed chiefly of quartz, oligoclase-andesine, microcline, and biotite. Well foliated near margin of pluton, locally forming augen gneiss; weakly foliated in interior. Strongly foliated medium-grained border zone as much as 90 m wide near Turret has foliation parallel to the

commonly are 0.5-1 cm across and form about a third of the rock. Biotite locally forms clots about 1 cm across and is an accessory constituent of the groundmass. Weathers pale reddish-orange to pale

section is 2.5 m thick at southern boundary of sec. 16, T. 51 N., R. 9 E.

calc-silicate minerals formed by contact metamorphism at Calumet mine. Thickness 0-450 m

Locally graphitic at Calumet mine and other localities where metamorphosed. Contains abundant

laccolithic body. Locally quarried for building stone. Dated at 69-70 m.y. (Wrucke, 1974)

36 m.y. (Epis and Chapin, 1974)

area. Width of dikes 1-40 m

shale. Some sandstone is crossbedded

Major intraformational unconformity mapped by Pierce (1969)

near mouth of Rye Slough. Thickness 0-750+ m

Chaffee Formation (Upper Devonian) -- In descending order:

fossil fish plates. Thickness 0-23 m

Panidiomorphic texture. Width of dikes about 1 m

(albite) in the Turret district (Baillie, 1962)

yellow. Forms irregular bodies in granodiorite (Xgd)

of meters into well foliated gneiss (Xgn)

ANTICLINE - Plunge shown by arrow

SYNCLINE - Plunge shown by arrow

STRIKE AND DIP OF BEDS

30 ← BEARING AND PLUNGE OF LINEATION

Vertical

· · · · VEIN

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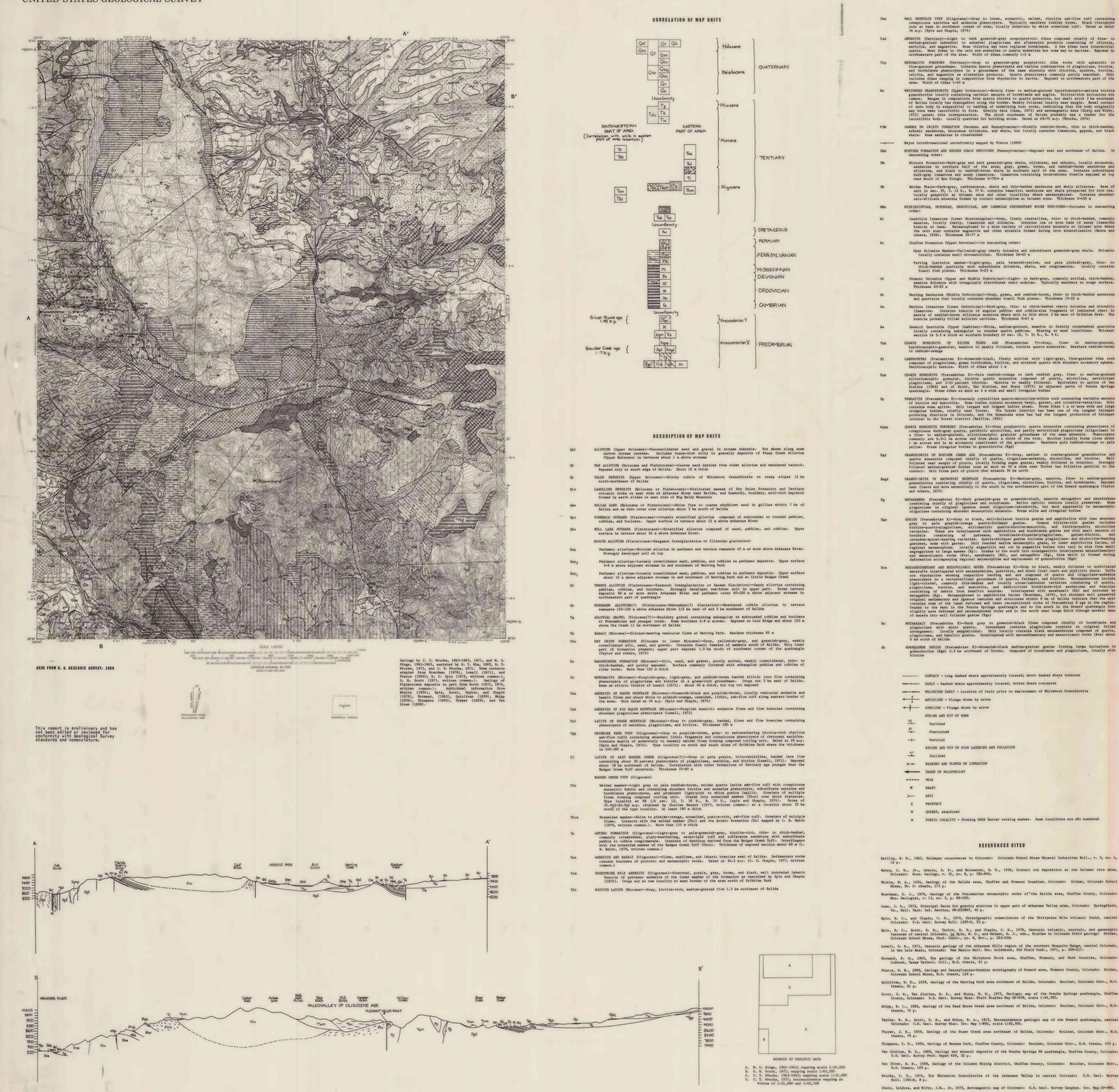
contact. Unit forms part of pluton that extends 50 km north

quadrangle. Forms dikes as much as 6 m wide and small irregular

locally contains small stromatolites. Thickness 26-40 m

northwestern part of the area. Width of dikes commonly 1-3 m

conspicuous sanidine and andesine phenocrysts. Typically weathers reddish brown. Black vitrophyre zone at base in northwest corner of area, locally underlain by white nonwelded tuff. Dated at about



GEOLOGIC MAP OF THE CAMERON MOUNTAIN QUADRANGLE, COLORADO